

STANDOTHEK

**The quick way
to a perfect colour match**



STANDOX

The Art of Refinishing.

Paint protects. Paint perfects.

The somewhat drab coach lacquers of yesteryear and the unbelievable diversity of modern car colours are a century – and worlds! – apart. Black, red-brown and green

were the big sellers in the old days. Other shades were neither available nor affordable. Today, Standox alone offers well over 30,000 shades – with different effects and in different paint types. More than any car purchaser, today's vehicle refinisher

is faced with a seemingly endless array of colours from which to accurately identify – and accurately tint – the desired shade. The refinisher's choice ultimately decides whether he and his customer are truly 100% satisfied with the finished paintwork.



Contents



The world of colour 4 – 5



A perfect match? 6 – 7



Standex colour formula 8 – 9



Accurately identifying colours 10 – 13



The right system 14 – 17



The right colour 18 – 19



Use the 2-gun principle 20 – 21



Tinting made easy 22 – 23





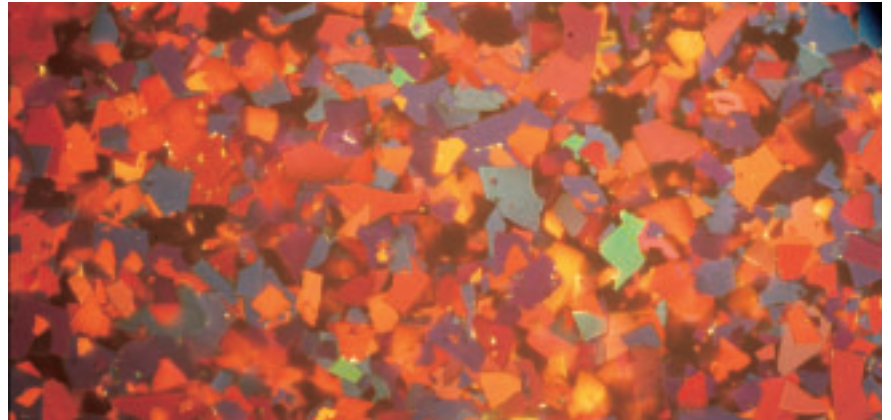
The world of colour

What is colour?

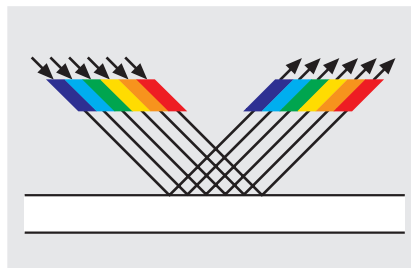
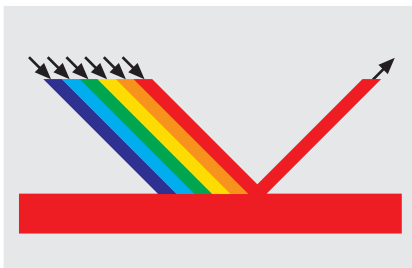
Colour is basically nothing other than a (subjective) sensory impression on the eye. Colour is a property of light and is entirely dependent upon it.

What is light?

Light is electromagnetic radiation of various wavelengths. The range of light visible to man can be broken down with a prism into the colours of the rainbow or of the spectrum, from red through to violet.



Incidentally, the human eye is incapable of perceiving ultraviolet and infrared light.



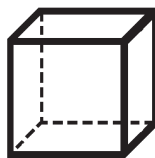
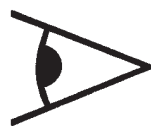
How does colour come about?

To perceive colour, three things are necessary.

- A light source
- An object that reflects the light
- A receiver that picks up the reflected light (e.g. the eye).

A coloured, e.g. red, surface is perceived as being red because it only reflects light of the wavelength of just this colour, i.e. red. All the other wavelengths are swallowed up (absorbed) by the surface.

However, there's no rule without exceptions:



A white surface reflects all the light rays and thus appears white. A black surface absorbs all the light rays and thus appears black.

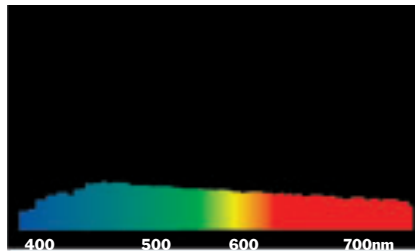
The colour reflected by an object also depends upon the colour of the light striking it.

For example, let us assume that a green object is illuminated by a red light. This object only reflects the colour green. Since, however, it is only illuminated by red light, it reflects absolutely nothing – and appears to the eye not green but black.

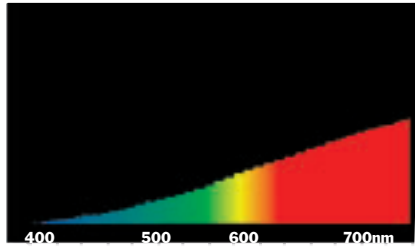
The phenomenon of metamerism

It often happens that two colours (e.g. OEM colour/vehicle refinish) appear identical in daylight, but different under a different light source (e.g. artificial light). This is known as metamerism.

Metamerism arises when the pigments of two colours differ: If, for



Daylight



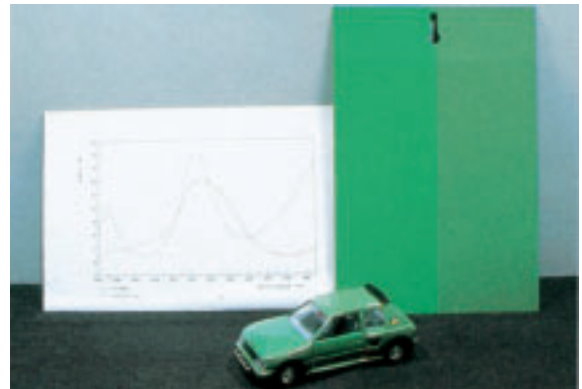
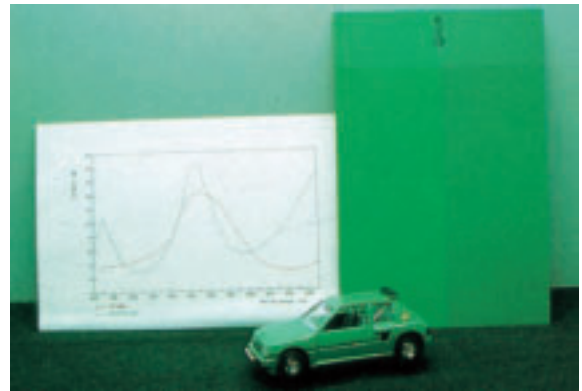
Artificial light

example, one green is based on a pure, green pigment, and the other mixed from blue and yellow pigments.

Can metamerism be avoided?

During vehicle refinishing, it is essential to only use the same pigments as employed in the online finish.

Standomix colour formulae satisfy this condition. The formulations are tested in the laboratory under a wide variety of types of light. Nevertheless, if subsequent tinting proves necessary in practice, mixing enamels from the specified Standomix colour formula should always be used if possible.



The A to Z of colour

A **Absorption** = The take-up of light by the illuminated object.

Additive colour mixing = The addition of light of different wavelengths. E.g., red and green light yield yellow light (on the colour TV principle).

Colour = Physically (and anatomically) dependent sensory impression.

Infrared = (IR) light with a wavelength of >800 nm.

Light = Electromagnetic radiation in the wavelength range of 400 nm (blue) to 800 nm (red).

Metamerism = Apparent identity of two colours under the same light source. Other light source may yield other colour impressions (due to different pigments).

Primary colours = Red, blue and yellow (see "Subtractive colour mixing").

Reflection = The return of light from a surface.

Secondary colours = The secondary colours are the three colours produced by mixing two primary colours, i.e. green, violet, orange.

Spectral colours = All the colours perceptible with the human eye, with an electromagnetic wavelength range from 400 nm (blue) and 800 nm (red).

Standomix colour formula = Reliable recipe for true-to-original refinishes.

Subtractive colour mixing = All other colours can be obtained by mixing the colours red, blue and yellow (primary colours).

Ultraviolet = (UV) light with a wavelength below 400 nm.

Wavelength = The wavelength of an electromagnetic beam determines whether colours are visible or not.



A perfect match?

**Or
miracle mass
production.**



A few gifted individuals are said to have what is known as "perfect pitch". This means that they can precisely identify and strike a note

without resorting to a reference note. By comparison, there have never been individuals with a "perfect memory of colour".

The perception of colours is primarily a matter of subjective impression, which can be strongly influenced by external circumstances. When it comes to reproducing colours, bind-

ing colour standards and tests are therefore indispensable.

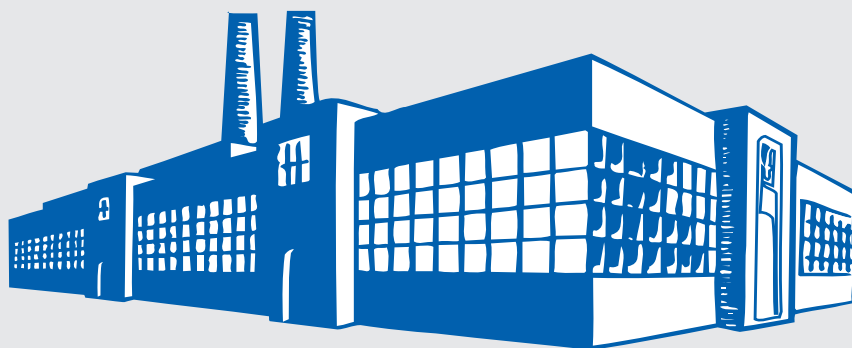
Precise colour tests and releases have been routinely practised in paint production for decades. Uniform, efficient final inspections of colours would in fact make sense in all mass production processes. This way it would be possible to ensure

Different production plants

Different application methods

Different flash-off times

Different application climates



Different production plants have different stock, supply, application and drying parameters. These may easily give rise to colour fluctuations.

Different arrangement of the effect particles

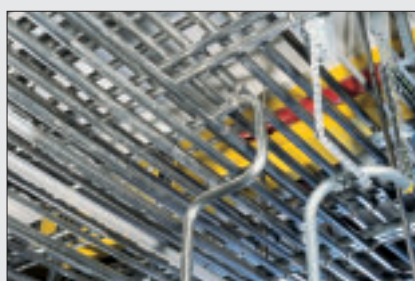
Right



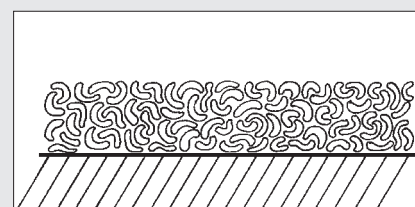
Wrong



Metallic finish



Ring main feed



**Deformed
aluminium particles (metallics)**



that original colours remained stable throughout a production batch, i.e. without colour fluctuations.

The reasons for colour fluctuations, e.g. in the OE production of modern vehicles, are varied. One only has to consider the huge range of colours (plus the special colours as well), which are specified for all

of a manufacturer's new vehicle models! – although the individual model series are produced at different sites.

To make matters worse, paint is often applied with different application methods (manually, automatically by robot or electrostatically) or even totally different paint bases are used

(e.g. conventional/water-based paint). Car production plants are just as frequently served by changing paint suppliers, who all operate with their own totally different formulae.

Different paint types

Different clearcoat, 1K or 2K paint materials

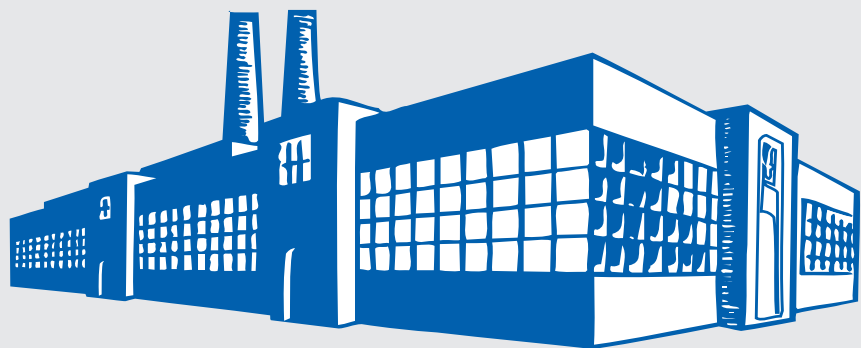
The application methods employed, the paint types used and the different formulations from different paint suppliers also have an effect on colour accuracy.

Different application equipment/methods



Manual finishing

Water-based paints and powder coatings



Different paint chemistry



Mechanical finishing by robot



Electrostatic finishing



From the OEM colour to the Stadox colour formula

New colours – new demands

When today's designers for the OE production of cars develop new shades, a huge and ever growing diversity of demands and specifications have to be complied with. Because every new colour is expected to

- suit the vehicle shape and harmonize perfectly with it,
- slot neatly into the colour line of the particular vehicle segment,
- satisfy certain pigment requirements (e.g. for industrial safety reasons),
- meet technical demands (e.g. resistance to fading),
- comply with the estimated costs,
- be easy to apply online,
- convey individuality (demarcation from the competition as well as a means of differentiation for the customer),
- take up current fashion trends, etc.

Colours composed by designers with totally new pigments and effects are therefore by no means rare, given such a huge range of specifications.

And in all this the demand of serviceability is very often neglected – particularly when it comes to simple and trouble-free repairs for the vehicle refinisher.



New colours mean new tasks. Stadox colour formulae consistently adhere to the principle of easy colour reproduction.



Clear, sensible search criteria – car colours have to be identified quickly and accurately. No less important is finding the right mixing

MERCEDES BENZ SPEZ. PAPRIKAROT 8D8L. (1) (M) D B 3 5 2 4	
MISCHLACKE	
MIX 361	
MIX 366	
MIX 370	
MIX 380	
MIX 363	

formula for the colour in question. And including correction instructions.

Nothing is impossible.



Aggressive environmental conditions, e.g. omnipresent UV radiation, can modify even the most stable shade. Nevertheless, if the paint-work is ever damaged, the vehicle refinish

colour must still exactly match the automotive paint. Stadox Coloristic experts therefore study and document colours day after day in practical conditions. This also helps to ensure

that you can always benefit from our latest findings.

“It must be easy for anyone like Stadox with a gigantic colour formula archive to produce formulae for new automotive colours!” Nevertheless, the new standard production colours may differ immensely.

There is now a growing trend towards extensions of the colour range through the addition of totally new effects.

For this reason it is necessary to meticulously develop each individual formulation from scratch.

At Stadox, the overriding principle is to make colour mixing and match-

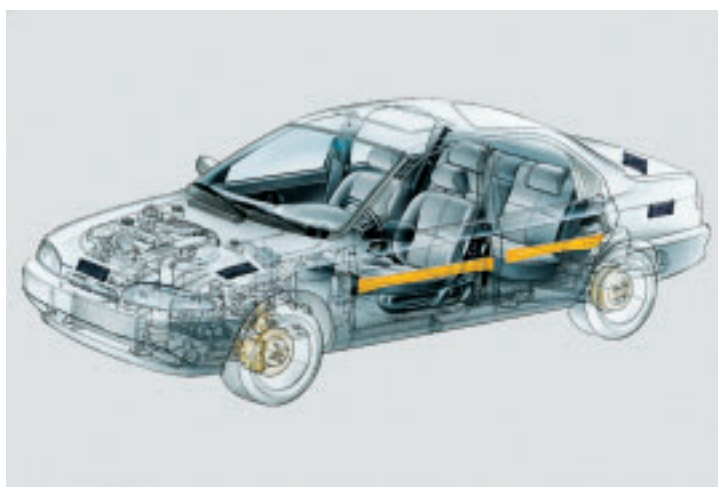
ing simple, a principle which you are also strongly advised to follow in daily practice. Wherever possible, use only the mixing enamels of the Stadox colour formula – even for tinting work. Otherwise colour variations and metamerism may occur. Anyone who adheres to this principle is on the sure road to success.



Accurately identifying colours

A systematic approach helps to prevent mistakes.

It certainly takes a little experience when it comes to looking for – and finding – the colour code number details on a damaged vehicle.



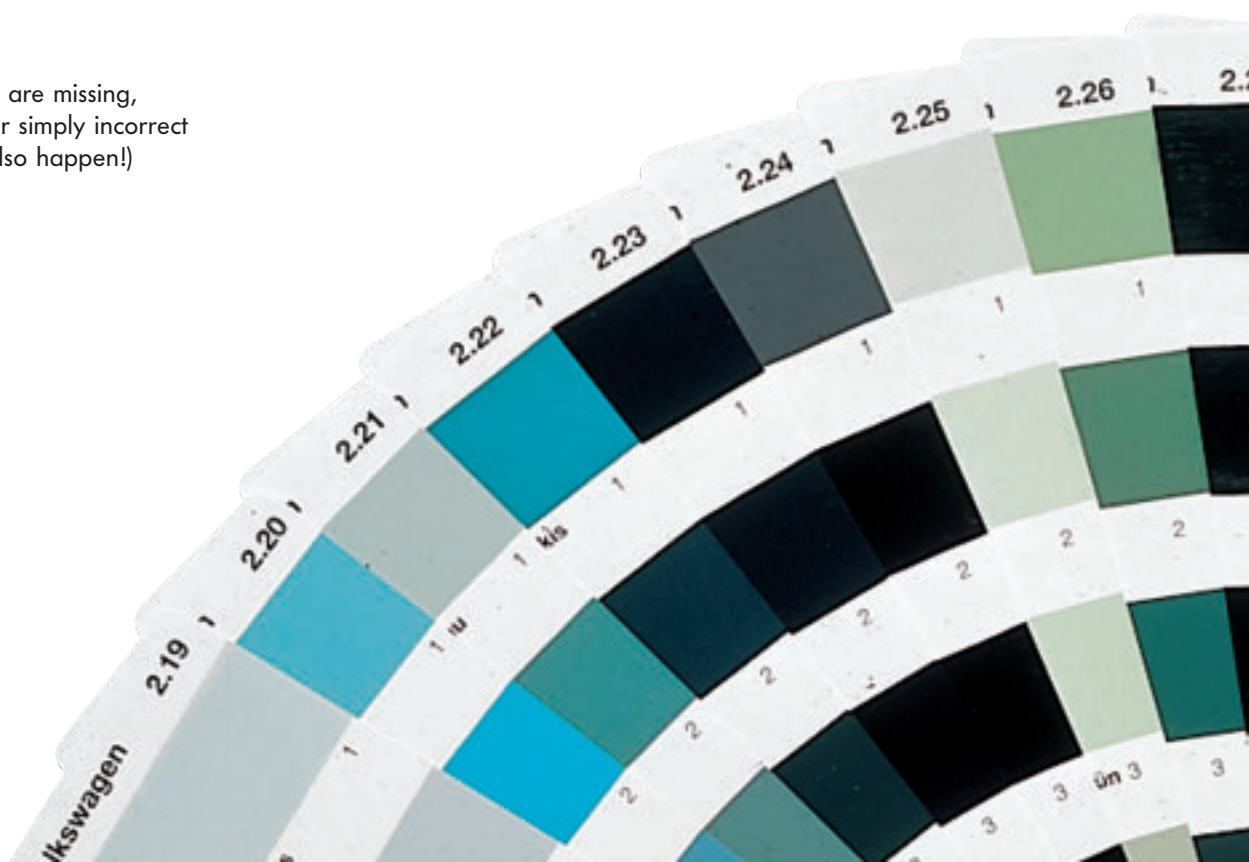
You can always ring up your Standex representative or Standex distributor or cast your eye over the UNIVERS system (see page 15). Thanks to regular Coloristic updates, you can be sure of always having the very latest helpful information at your disposal.

These type plates, which supply information not only on the original shade, are affixed by every manufacturer in a different position on the car. And this position may even vary from model to model as well.

- code numbers have been changed in the factory. (This is often done if contrast colours for add-on parts or interior colours have to be coded as well.)

Trouble arises if

- colour codes are missing, incomplete or simply incorrect (which can also happen!)



No more than 5 steps to the right colour formula

As a rule, five systematic steps are all it takes to find the right Standox colour formula.



At any rate, Standox provides you with all the key data – be it on microfiche, for PC scales or through UNIVERS.

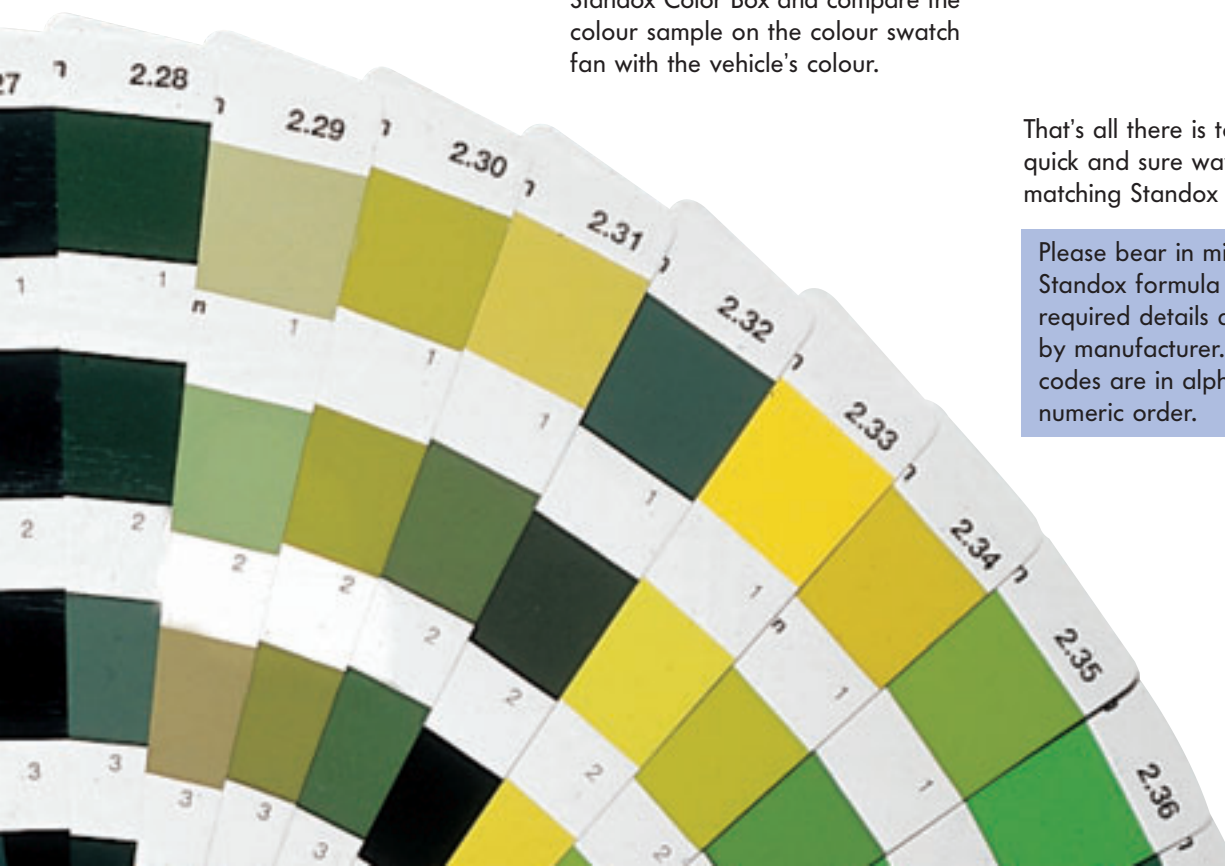
1. Find the car maker's colour code on the vehicle (useful search advice is also contained in the user's manuals).

2. Look for this code number in the Standox Color Box and compare the colour sample on the colour swatch fan with the vehicle's colour.

3. Always check whether there is any reference to variants on the swatch fan. If not, then you've successfully identified the right colour. Proceed with point 5.

4. If variant information is provided, you must always take out the variant fan (part of the Color Box) and compare the relevant sample again with the vehicle's colour.

5. Now that the shade has been narrowed down, you can select the appropriate Standox mixing formula: Either on microfiche, or with the aid of PC (UNIVERS) or weighing software.



That's all there is to it. This is the quick and sure way to find the matching Standox colour formula.

Please bear in mind that in all Standox formula documents the required details are categorized by manufacturer. The manufacturer codes are in alphabetical or numeric order.



The Stadox colour formula

Not some esoteric science.

All roads lead to Rome, so they say. At the same time, the surest way to reach your destination is to read a map.

The situation is no different with the Stadox colour formulae, because here, too, it is a question of knowing how to read them. And this is a good deal easier than reading a map.

Anyone who wants to read a map has to understand the symbols listed in the key. This is a simple matter when it comes to Stadox colour formulae, because you are helped in your work by instructive pictograms. This is all made easier by the fact that Stadox has confined itself to the truly essential details – and sticks to the same layout throughout. This means you can get on quickly with your work.

On the preceding pages you learned how to accurately identify colours – and arrive at the matching Stadox colour formula.

On this and the following page we have presented several formulae, all with identical layouts. It therefore makes no difference which information medium you use. The search paths, symbols and other features remain the same.

VOLKSWAGEN ¹		BASISLACK ⁴			
INKAGELB ²		1992- ⁵			
T 1 C ³		45410-100 ⁶			
⁷ MISCHLACKE		0,5 L	1,0 L	2,0 L	3,0 L
	MIX 580	99,0	198,0	396,1	594,1
⁹ H - >	MIX 870	392,3	784,7	1569,4	2354,1
	MIX 884	490,3	980,6	1961,2	2941,9
	MIX 579	511,1	1022,3	2044,7	3067,1
	MIX 564	535,8	1071,6	2143,2	3214,8
					⁸ VOC 691,2 GR

Points **1** to **9** refer to the following:

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> 1 Car maker (e.g. Volkswagen). 2 Car maker's colour designation (e.g. Inca yellow). 3 Colour code/ car maker's code (e.g. T 1 C). 4 Stadox paint type to be applied (e.g. basecoat). 5 From which year of construction (e.g. 1992). 6 For internal Stadox use: The number of the original manufacturer's standard (e.g. 45410-100). | <ul style="list-style-type: none"> 7 Mixing enamel bar: Details of the mixing enamels to be employed (e.g. MIX 580, MIX 870 etc.) are always given beneath along with details in grams for weighing finished mixtures of 0.5, 1.0, 2.0 or 3.0 litres. 8 The VOC value (e.g. VOC 691.2 GR) tells you how many grams (GR) of organic solvents are contained in a litre of ready-to-use mixture (= important information for industrial safety and the product's environmental profile). 9 Symbol for more highly pigmented mixing enamels (H). |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Pictograms



Formula in preparation; ask your Stadox distributor for details.



Obtain information from your Stadox distributor.



Attention: Further variants available.



Multicolour finish.



Limited opacity.



Three-coat system. Pay attention to the special basecoat colour and follow the technical information.



Health-hazardous mixture, marked Xn.



Mixture toxic because of lead content. Marked with a skull and bones.



Colour for plastic add-on part. Formula has to be matted or structured.



Only approximate colour possible – blend in.



See Technical Data Sheet.


Special colours

You may be interested in the colours of add-on parts in our special filing system – these can be identified by the pictogram shown bottom left.

In the present example, this is a Mercedes-Benz variant, indicated by the abbreviation "SPEZ."

In line 2 you will find the two symbols (1) and (M):

- (1) Colour for add-on part
- (M) Matted

MERCEDES BENZ SPEZ.		STANDOHYD BASECOAT				VOC 267,2 GR
PAPRIKAROT 8D8L. (1) (M)		1992-94				
D B 3 5 2 4		48130-300				
MISCHLACKE		0,5 L	1,0 L	2,0 L	3,0 L	S/A
MIX 361	235,3	470,7	941,5	1412,3		
MIX 366	469,2	938,5	1877,1	2815,7		
MIX 370	490,1	980,2	1960,4	2940,6		
MIX 380	504,9	1009,9	2019,9	3029,8		
MIX 363	517,3	1034,7	2069,4	3104,1		
						

In the same position you might also find the abbreviation (S). In this case a structured paint is specified.



The note (S/A) – bottom right – draws your attention to the fact that special colours/add-on parts are also illustrated.

Variants

The manufacturer's colour designation (2) is followed by such abbreviations as **GE** or **H** in these examples. These abbreviations (derived from the German terms) refer to variants.

- | | |
|---------------------|----------------------|
| D – Darker | BL – Bluer |
| F – Weaker | BR – Browner |
| H – Lighter | GE – Yellower |
| L – Stronger | GN – Greener |
| R – Redder | GR – Greyer |

- | | |
|--------------------------|--------------------------|
| (1) – Add-on parts | (4) – Boot |
| (2) – Engine compartment | (7) – Interior paintwork |

OPEL		STANDOHYD BASECOAT				VOC 289,9 GR
CASABLANCAWEISS/ GE (2)		1988-				
L 4 7 4		37118-100				
MISCHLACKE		0,5 L	1,0 L	2,0 L	3,0 L	87 = 1.48.1 92 = 1.42.2 N/V
MIX 370	552,6	1105,3	2210,6	3315,9		
MIX 368	584,8	1169,6	2339,3	3508,9		
MIX 364	595,3	1190,7	2381,4	3570,1		
						
OPEL		STANDOHYD BASECOAT				
CASABLANCAWEISS/ H (2)		1988-				
L 4 7 4		08816-100				
MISCHLACKE		0,5 L	1,0 L	2,0 L	3,0 L	
MIX 370	580,4	1160,8	2321,7	3482,5		
MIX 364	602,1	1204,2	2408,4	3612,6		
MIX 388	602,1	1204,3	2408,6	3612,9		
						

In addition, the bottom right-hand corner contains reference not only to the variant (**N/V**), but also to the fact that the colour in question, e.g.

in the 87 (87 = 1.48.1) or 92 (92 = 1.42.2) edition of the Standox Color Box, can be referred to under the relevant colour code.

The variant fans of the Standox Color Box can also be used for a colour comparison.



The right system

**Times change.
So does the system.**



**The Standomix mixing enamel system.
There's hardly a quicker or simpler way of
obtaining the right refinish colour.**

Any vehicle refinisher who back in the 60s ordered "Mars red A3A" from his paint supplier, received a ready-mixed paint. However, in those days the paint often took a long time to arrive, particularly if out-of-the-ordinary colours were requested.

Standox was one of the first to understand the signs of the times and established a modern system of logistics which rules out "delivery periods" from the outset: The Standomix mixing enamel system.

Standomix is effectively a miniature paint production plant for you, the user. You determine the paint types and shades by referring to the Standox colour formula.

During the changeover in the logistics system, use was then made of an information technology, which is still used today in the vehicle refinishing trade: Microfiche displayed on a special reader. Although Standox still serves microfiche users, the days of this technology are clearly numbered.

Complex weighing systems and other, labour-saving PC software programs, which support job management, are becoming more and more widely established.

The Standomix mixing system, Standox Color Box, the formula archive (here you can see the microfiche reader), an accurate weighing system (above) – this is how a paint preparation station looks.



Microfiche readers are still in use, although they are increasingly being superseded by efficient PCs with specially developed software (UNIVERS, see page 15).



User-friendly and convenient – UNIVERS is a software which ingeniously lightens your daily workload.

Standex identified another sign of the times early on – and developed a high-speed, comprehensive multimedia information system for PCs by the name of UNIVERS. This is a software which not only affords instant

access to all current colour formulae, but also supplies specific answers to virtually all questions which arise in everyday business.

UNIVERS offers paint-related information on a CD-ROM: Mixing formulae, colour and product information, safety data, application instructions and much more besides. Its structured search, help and cross references between individual parts of the program have eliminated time-consuming rummaging through information in piles of paper or on microfiche and floppy disks. All the UNIVERS data can be printed out any time and as required.

UNIVERS.
All the information at a click.

UNIVERS is far, far more than a reference work. For instance, it enables Standox mixing formulae to be modi-

fied as required and stored for certain specific customers. In addition, notes and other remarks can also be added for each shade.

If desired, UNIVERS can also show for each mixing formula the smallest quantity that can be efficiently mixed. This information is particularly useful and helps to cut costs when colour samples or spray-out cards have to be produced.

The quantity of organic solvents (VOC values) can also be quoted for each mixing formula. A VOC calculation method for ready-to-spray mixtures (including hardener and thinner) is in preparation.

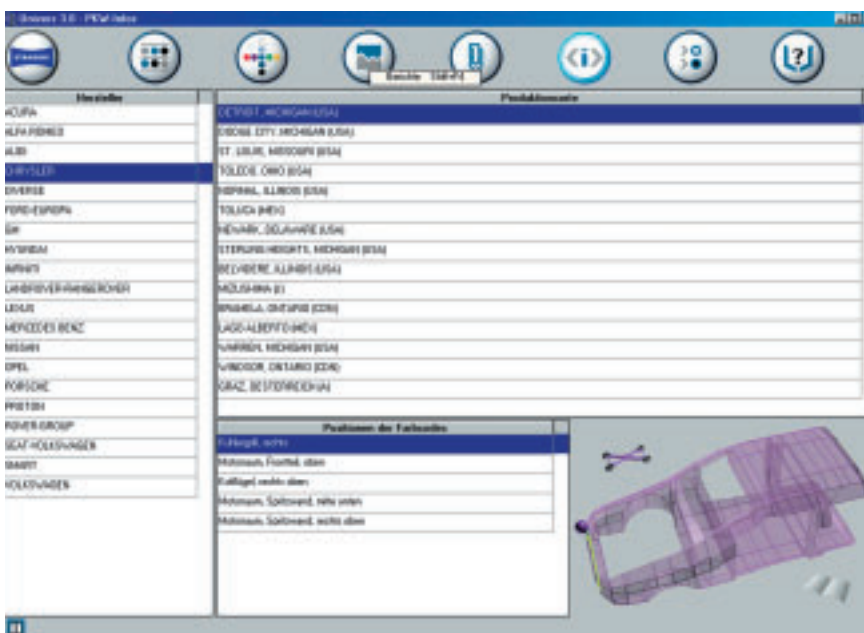
UNIVERS will soon be extended to include extra performance features, which UNIVERS users will automatically receive with the regular updates:

- In addition to the currently supported electronic scales Sartorius PMA 7200 and Mettler 7100, further weighing systems are now being included.
- Additional interface for Internet access.
- Additional interface for the integration of GENIUS, the Standox colorimetry system.

Further extensions, e.g. for warehousing and inventory management, are also in preparation.

PC requirements

If you wish to use UNIVERS, you need a standard PC.



UNIVERS – the quick, comprehensive multimedia information system on CD-ROM. From Standox.



The right system



Measuring and evaluating colours electronically



GENIUS – Since five different angles are simultaneously measured during each measuring cycle, the results are highly accurate. Particularly with metallic and pearlescent colours, which have an extremely pronounced flop.

Internet 3.0 - Farbtonecherche

Hersteller: Bmf / International - PKW Modell: 218-325I CABRIO

Hersteller	Kategorie	Code	Farbton	Version	Von	Bis	Vorlage
BMW	PKW	086	SCHWARZ		1990	1993	17178
BMW	PKW	138	ZINNOBER RED		1984	1993	20438
BMW	PKW	138	ZINNOBERROT		1984	1993	20438
BMW	PKW	181	DIAMANT BLACK-MET.		1984	1995	81095
BMW	PKW	181	DIAMANTSCHWARZ-MET.		1984	1995	81095
BMW	PKW	218	ALPINWEISS II		1988	1993	11316
BMW	PKW	244	STERLING SILVER-MET.		1990	1994	39498
BMW	PKW	244	STERLINGSILBER-MET.		1990	1994	39498
BMW	PKW	250	MACADBLAU-MET.		1988	1991	65667
BMW	PKW	252	CALYPSO RED-MET.		1990	1998	39198
BMW	PKW	252	CALYPSOROT-MET.		1990	1998	39198
BMW	PKW	259	BROKATROT-MET.		1990	1994	06689
BMW	PKW	263	DUNKELBLAU		1993	2001	28050
BMW	PKW	269	ARKTISGRAU-MET.		1993	1997	44971
BMW	PKW	275	BOSTONGRUEN-MET.		1993	1999	34260
BMW	PKW	276	AVUS BLUE-MET.		1992	2000	46050
BMW	PKW	276	AVUSBLAU-MET.		1992	2000	46050
BMW	PKW	280	GLETSCHEBLAU-MET.		1990	1993	35588

Verfügbare Qualitäten: 2K-Autolack, 3K-Autolack, 2K-HS-Autolack, Standard Basecoat, Basecoat, 2K-HS-PLUS-Autolack

RAL 9005/BL Art.Nr. 02090172
als Ready Mix verfügbar
gesundheitsschädlich, Kennzeichnung XN

48 Farbtime

There are a lot of pitfalls in determining precise shades – a fact which cannot be ignored. Achieving a perfect colour match often takes a long time and costs a lot of money.

The trade world has therefore been showing a huge interest in a technical innovation which will soon be available in numerous vehicle refinishing shops. This innovation is called GENIUS, the optoelectronic colour measurement and evaluation system from Standox.

GENIUS meets all the requirements for precisely and swiftly measuring colours. To this end, the colour is measured by a handy colour measuring device on the vehicle itself. After measuring the cleaned paint

surface on the damaged vehicle, the data collected by GENIUS are fed into a PC and further processed by it.

Since five different angles are simultaneously measured during each measuring cycle, the results are extremely accurate. The device is capable of reliably and precisely detecting pearlescent effects as well as solid-colour and metallic shades.

After this, the colour values obtained are compared with the data from online colours stored in the PC. The colour search program from GENIUS contains well over 30,000 stored colours – updates are regularly supplied owing to the rapid growth in the number of colours. After evaluation, the system supplies the Standox

mixing formula for trouble-free blending-in.

What makes GENIUS especially ingenious is its ability to correct formulae. Whenever the measured shade differs from the online original, the software developed by Standox modifies the stored formula.

Since each modified formula can be deposited in a customer file, the stock of formulae is constantly expanding. This means that an additional spectrum of variant formulae is soon available for dealing with even the slightest shade deviations.

Standox GENIUS consists of hard- and software: The mobile measuring device, the software with the colour search program and correction function as well as a lockable storage box. At the same time this box also serves as an interface with the PC and protects the contents from dirt. The batteries, which supply the measuring device with power and thus facilitate its versatile and cordless use, are also charged here.



The lockable box is used for safely storing and recharging the GENIUS measuring device. This box also serves as the interface to the PC.



The right colour

The efficient way to achieve brilliant results

Each refinishing job starts with identifying the colour right. You can find out about this on pages 10 and 11.

Step 1

Using Stadox Polishing Paste, clean an area about the size of your palm next to the damaged paintwork.

Step 2

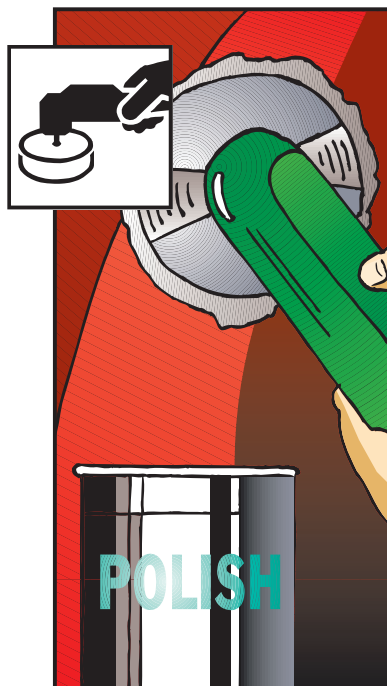
Look for the colour code and the colour designation on the car. Make absolutely certain that the vehicle has not already been resprayed before.

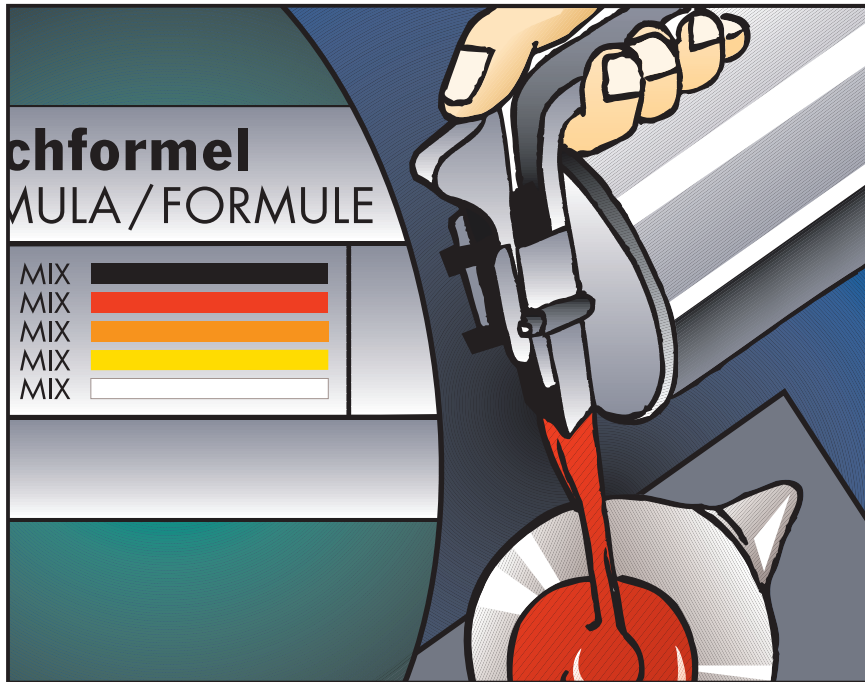
Step 3

Take the Color Box swatch fan (or variant fan) to the vehicle and compare the fan's colour sample with the cleaned surface on the vehicle (see Step 1).

Step 4

After identifying the shade, look for the corresponding mixing formula in the PC, on the computer scales or on microfiche. Mix the exact quantities of ingredients as given in the formula.





Step 5

Carry out a colour check, first of all as a rough comparison. Best of all use a spray-out card. In the case of conventional solid-colour paints and Standohyd solid-colour/metallic/pearlescent basecoats, apply the paint to a Standox spray-out card and allow it to dry. In the case of conventional metallics and pearlescents, make a rough comparison by letting the unthinned paint run off the mixing stick. Colour tests should be

carried out if possible in daylight (northern light) or in artificial light, e.g. OSRAM LF 72 or PHILIPS TL 96.



Step 6

If the colours match, prepare a spray-out card for a precise colour comparison – and paint the vehicle. File away the card as documentation.



Use the 2-gun principle

Advantages of the 2-gun principle:

1. Time savings

... as a spray-out card for the next job is produced together with the vehicle refinish.

2. Reliability

With metallic and pearlescent spray-out cards, the effect of the spraying technique has an effect on the shade.

3. Savings of time and money!

Efficient working methods eliminate paint defects and unnecessary spraygun cleaning.



**Prepare the
paint sample for
the next vehicle.**

**Shade OK =
finish painting
the vehicle.**

Possible sources of error when mixing colours

The causes of error are as varied as the colours themselves. Here is a selection of the most frequent error sources.

- Dirty scales.
- The scales are in a draught.
- The scales are not standing firmly.
- The microfiche reader is dirty, causing mistakes when copying down the data (use of wrong mixing enamels, wrong product quantities).
- Antiquated formula documents or data carriers.
- Choice of wrong shade.
- Failure to adhere to stirring times/intervals.
- Dirty mixing lid spout: Small quantities cannot be accurately weighed.
- **Change of can**
- Stirring: By hand with a mixing stick – then 10 min in the mixer.
- Wrong or incorrect light when matching colours – Standox recommends, for instance, OSRAM LF 72 and PHILIPS TL 96 lamps.

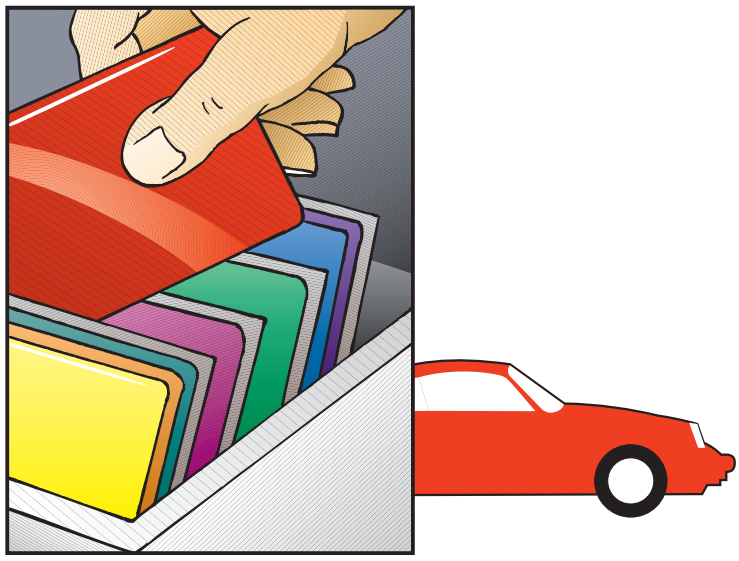
2-gun principle (sequence of worksteps)	
Yellow vehicle	Red vehicle
Colour of sprayed sample OK	New job: Identify colour, mix to formula
Paint vehicle (clean spraygun)	Spray card (mixture remains in spraygun)
Vehicle dries	Spray-out card dries
New job: Identify colour, mix to formula	Colour of spray-out OK
Spray card (mixture remains in spraygun)	Paint vehicle (clean spraygun)
Spray-out card dries	Vehicle dries
Etc.	Etc.

**What about your mixing station?
Everything OK?**

The success of each job also depends on the state of your work-place.

Only when you have truly ensured that everything is in its place and in proper working order can you save time and money. Only then can one work efficiently.

- Regularly clean your equipment, mixing lids and tools.
- Regularly check your equipment for correct function – particularly your scales.
- Make sure that you are always working with the very latest version of the formula.
- Accustom yourself to a certain strict routine when it comes to stirring the paint. For instance, always mix for 15 minutes before starting work in the morning and towards midday. If you are using new cans, these first have to be stirred manually and then mechanically for 10 minutes. And before weighing paint quantities, always stir for a minute.





Tinting made easy

Developing a keen eye

In spite of following all the rules and steps, and in spite of referring to the possible variants, it may still happen that the mixed colour doesn't exactly match the car's colour.

Just how varied the causes of colour differences can be is described in detail on pages 6 and 7.

In such cases, the new colour has to be tinted. As there are no fixed formulae for this, experience and a trained eye are all the more important.

But don't worry: There is a whole range of useful rules even for tinting. Anyone familiar with them is well on the way to mastering this technique.

For tinting especially, spray-out cards are of decisive importance (see also page 18, step 5).



Basic rules

- When tinting, only ever use the mixing enamels specified in the colour formula.
- When tinting an existing colour, follow the principles of colour complementarity and affinity as presented in the chromatic colour circle. Complementary colours are not recommended for tinting as they introduce incompatible pigments into the new colour, which may result in a muddy final shade.

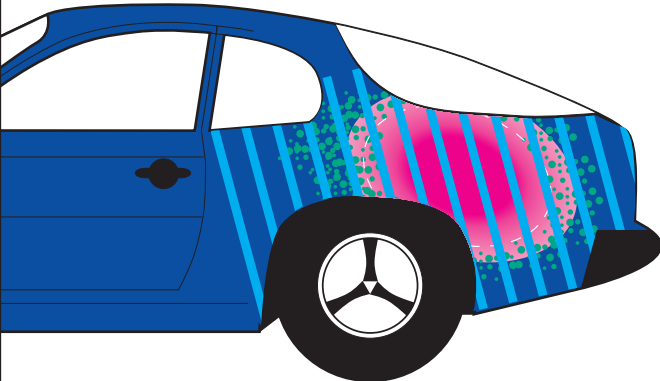
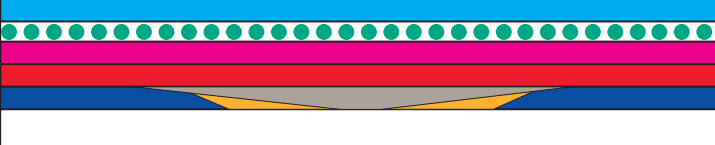
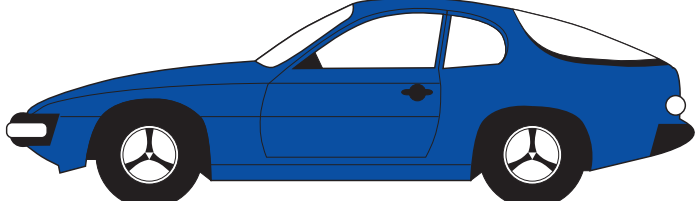
Spray-out cards

- Spray each colour sample immediately.
- Colour samples should be applied to one and the same card without gaps in between. Try to avoid mixing the individual samples.
- All colour samples should be the same size because size is also an important factor in assessing a colour. Sufficient are areas of about 4 x 5 cm.

Blending in basecoat for a two-coat finish

The problem and how to solve it.

Vehicles of this kind often have large body parts. So that you don't have to paint the whole part, blend in the colour/clearcoat boundary with STANDOX Fade-Out Thinner. Suitable in the present case are narrow body parts like the C-pillar, for instance.

Application	<ul style="list-style-type: none"> • Blending in basecoat for a two-coat finish 									
Object as an example <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-top: 10px;"> Prepare spray-out card beforehand </div>	<ul style="list-style-type: none"> • Spot repair within a large vehicle panel • Painting with effect assimilation within the repaired surface • Blend in the colour/clearcoat boundary with STANDOX Fade-Out Thinner 									
Substrate	<ul style="list-style-type: none"> • Prepare vehicle refinishing work in the usual way (see Standox paint systems), keep area of filler as small possible 	<p style="text-align: center;">Cross section through the damaged paintwork</p> 								
Pretreatment	<ul style="list-style-type: none"> • Clean boundaries with a moistened sponge using STANDOXYD Polishing Paste, fine 									
Cleaning	<ul style="list-style-type: none"> • Standox Silicone Remover 	<p style="text-align: center;">Color symbols</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Paint coat (original)</td> <td style="width: 50%;"> Clearcoat area</td> </tr> <tr> <td> Basecoat: 1st spray coat</td> <td> Stopper</td> </tr> <tr> <td> Basecoat: 2nd spray coat</td> <td> Filler</td> </tr> <tr> <td> Basecoat: Effect assimilation</td> <td> Clearcoat</td> </tr> </table>	Paint coat (original)	Clearcoat area	Basecoat: 1st spray coat	Stopper	Basecoat: 2nd spray coat	Filler	Basecoat: Effect assimilation	Clearcoat
Paint coat (original)	Clearcoat area									
Basecoat: 1st spray coat	Stopper									
Basecoat: 2nd spray coat	Filler									
Basecoat: Effect assimilation	Clearcoat									
Painting step 1	<ul style="list-style-type: none"> • Apply the basecoat to the damaged area with subsequent effect assimilation • Flash !off 	<p>After through-drying, the boundary area can be polished if necessary with STANDOXYD Polish.</p>								
step 2 step 3	<ul style="list-style-type: none"> • Apply STANDOX Clearcoat to the area • Mixing ratio of 5 parts STANDOX 2K Fade-Out Thinner + 1 part hardened 2K Clearcoat Blend in boundary area with this ratio and at normal spraying pressure 									
Polish as required	<ul style="list-style-type: none"> • After through-drying, the boundary area can be polished if necessary with STANDOXYD Polish. 									
		<p style="text-align: center;">You have followed the individual repair instructions exactly and repaired the damaged.</p> <p style="text-align: center;">Perfect! Congratulations!</p>								



Standex GmbH · Postfach · 42271 Wuppertal · Germany